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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SCHLENTZ, NATHAN W

ART UNIT

PAPER NUMBER

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/566,411	<b>Applicant(s)</b> RINALDI ET AL.	
	<b>Examiner</b> Nathan W. Schlientz	<b>Art Unit</b> 1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5,6 and 8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5,6 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Status of the Claims***

Claims 1, 5, 6 and 8 are pending in the present application and are thus examined herein on the merits for patentability. No claim is allowed at this time.

### ***Withdrawn Rejections***

Rejections and/or objections not reiterated from the previous Office Action are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of rejections and/or objections presently being applied to the instant application.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Raisfeld (US 4,507,321).

Raisfeld discloses topical or oral compositions comprising a polyamine, such as spermine or spermidine, which are useful to regulate, i.e., stimulate or inhibit, epithelial cell growth (Abstract; col. 2, ln. 68; col. 3, ln. 1, 27-33 and 58-68; and col. 3, ln. 1-19).

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Raisfeld discloses that the compositions for topical application contain the active ingredient in from about 0.005% to about 5% by weight, wherein 0.05  $\mu$ mol to about 0.5  $\mu$ mol per gram vehicle is optimal for the stimulation of epithelial cell growth, while concentrations of from about 0.5  $\mu$ mol to about 1 mmol per gram vehicle inhibit cell growth (col. 4, ln. 1-7). With respect to compositions for oral or parenteral administration, the optimal dosage for stimulation of cell growth is 0.2 to 10 mmol active ingredient per patient per 24 hours, whereas higher dosages can be utilized where inhibition of cell growth is desired (col. 4, ln. 16-26). Raisfeld further discloses examples wherein topical or oral formulations comprise spermine or spermidine (Examples 1, 2 and 4-11). See also claims 1, 2, 5, 8, 9, 13 and 14.

### ***Response to Arguments***

Applicant argues on page 4 that none of the cited prior art relates to a method of cosmetic treatment of the human skin to improve hydration of the human skin to maintain the beauty thereof. Applicant further argues on page 5 that Raisfeld, Charonis and Ilenchuk relate to the treatment of skin of a subject suffering from a pathological disorder or having damaged skin for cell regeneration processes in pathological or damaged skin. However, the examiner respectfully argues that the only steps involved in the method of the instant claims comprises topically or orally administering a composition comprising spermine or spermidine. Therefore, topically administering spermine and/or spermidine to human skin or orally administering spermine and/or spermidine to a human will inherently improve hydration and maintain beauty of the skin. Raisfeld teaches topically administering spermine and/or spermidine to human

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skin or orally administering spermine and/or spermidine to humans. Therefore, Raisfeld performs the same active steps as instantly claimed. Thus, in the absence of evidence to the contrary, administration of spermine and/or spermidine according to Raisfeld inherently improves hydration and maintains beauty of the skin.

The examiner respectfully points out the following from MPEP 2112: "The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). In *In re Crish*, 393 F.3d 1253, 1258, 73 USPQ2d 1364, 1368 (Fed. Cir. 2004), the court stated that "just as the discovery of properties of a known material does not make it novel, the identification and characterization of a prior art material also does not make it novel."

Applicant also argues on page 5 that Example 10 of Raisfeld describes a capsule with 50 mg of spermidine, which amounts to 16.6% b.w. of that capsule. However, the examiner respectfully argues that Raisfeld discloses that the compositions for topical application contain the active ingredient in from about 0.005% to about 5% by weight, wherein 0.05  $\mu$ mol to about 0.5  $\mu$ mol per gram vehicle is optimal for the stimulation of epithelial cell growth, while concentrations of from about 0.5  $\mu$ mol to about 1 mmol per gram vehicle inhibit cell growth (col. 4, ln. 1-7). With respect to compositions for oral or

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parenteral administration, the optimal dosage for stimulation of cell growth is 0.2 to 10 mmol active ingredient per patient per 24 hours, whereas higher dosages can be utilized where inhibition of cell growth is desired (col. 4, ln. 16-26). Therefore, Raisfeld clearly discloses topically or orally administering the active ingredient in an amount within the instantly claimed range wherein the low concentrations are suitable for stimulation of epithelial cell growth and the higher concentrations are suitable for inhibiting cell growth.

2. Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Ilenchuk et al. (WO 99/51213).

Ilenchuk et al. disclose the topical administration of polyamines in the palliative treatment of chronic diseases and disorders of epithelial tissue, such as dry skin and Winter itch (Abstract). Ilenchuk et al. disclose that the use of polyamines for therapeutic treatment of tissue damage is known (pg. 12, ln. 33-35), wherein it is taught that polyamines regulate, stimulate or inhibit epithelial growth (pg. 13, ln. 1-11). Ilenchuk et al. further disclose that the preferred polyamines include spermidine and spermine in the free base form or acid addition salt form (pg. 19, ln. 20, 21; and pg. 20, ln. 15-18), and the compositions are suitable for topical and oral administration (pg. 20, ln. 25-35) for the treatment of dry skin and Winter itch (i.e., improve hydration) (pg. 14, ln. 6 and 25; and pg. 18, ln. 24). Ilenchuk et al. disclose several examples wherein spermine or spermidine is formulated into topical or oral administration formulations (pg. 22-27, Preparations 1-11). Ilenchuk et al. disclose ointment, jelly, lotion, gel formulations

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comprising 0.05  $\mu$ mol to 1 mmol spermidine or spermine (Preparations 1, 2 and 4-6).

See also claims 1-8.

### ***Response to Arguments***

Applicant's arguments are the same as above. Therefore, the examiners response above is incorporated herein by reference.

3. Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Eckart et al. (EP 0 884 046 A1).

Eckart et al. disclose cosmetic compositions with photoprotective properties, wherein the compositions comprise Vitamin E, Vitamin C, and at least one natural polyamine (Abstract). Eckart et al. disclose that especially preferred natural polyamines are spermine and spermidine (col. 2, ln. 13-14); and that the compositions are formulated as cosmetic skin-care products (col. 4, ln. 42-44). Eckart et al. disclose that free oxygen radicals in the skin, which result from UV exposure, attack skin constituents that are responsible for retention of elasticity and or moisture in the skin (col. 1, ln. 7-12). Eckart et al. state that in order to provide a protection of the skin against the formation of these free radicals, skin-care compositions are provided on the skin which contain anti-oxidants that may penetrate the skin and act as radical scavengers (col. 1, ln. 22-26). Among the most effective radical scavengers are the Vitamin C and Vitamin E based derivatives (col. 1, ln. 27-28), and the polyamines (i.e., spermine and spermidine) in combination with Vitamin E and C based derivatives show a synergistic improvement in effectivity. Eckart et al. disclose an example wherein a sun protection

balm was prepared comprising D-panthenol, Vitamin C, spermine, and tocopherol (Example 2). Eckart et al. further disclose that the polyamine (i.e. spermine and spermidine) is present in an amount of 10 ppm (0.001 wt.%), preferably in an amount of between 10 and 500 ppm (0.001 to 0.05 wt.%). See also claims 1, 8 and 11.

### ***Response to Arguments***

Applicant argues on page 6 that Eckart et al. shows how to enhance the photo protective activity of the active principles vitamins C and E on the skin irradiated with UV. Polyamines are only enhancers. Accordingly, the hydration improvement on non-irradiated skin resulting from the clinical study in the present application is therefore a different effect. However, the examiner respectfully argues that the claims do not limit the skin to that which has not been exposed to UV irradiation. Also, the skin as disclosed in Eckart et al. is not damaged by the UV irradiation, but rather the composition prevents damage from the UV irradiation. Furthermore, Eckart et al. disclose that the free oxygen radicals in the skin, which result from UV exposure, attack skin constituents that are responsible for retention of elasticity and or moisture in the skin. The compositions according to Eckart et al. provide a protection to the skin against the formation of these free radicals through incorporation of anti-oxidants that act as radical scavengers. The polyamines (i.e., spermine and spermidine) in combination with Vitamin E and C show a synergistic improvement in effectivity. Therefore, the compositions of Eckart et al. improve moisture in the skin by preventing attack on the constituents of the skin that are responsible for moisture in the skin. Also, as discussed above, claims 3-12 are drawn to the composition and its intended use in

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not given patentable weight to distinguish over Eckart et al. Also, administering the composition of Eckart et al. will inherently result in improving hydration of the human skin and maintaining beauty of the skin and skin appendages because the composition of Eckart et al. comprises the same amount of spermine or spermidine and is applied topically or orally, which is the same active step as instantly claimed.

4. Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Hahn et al. (WO 96/23490).

Hahn et al. disclose compositions and formulations containing polyamines for inhibiting skin irritation in animals (Abstract). Hahn et al. further disclose that the composition is for topical administration and comprises spermine or spermidine (claims 1 and 2).

### ***Response to Arguments***

Applicant argues on page 6 that Hahn does not relate to cosmetic treatment of human skin, rather it relates to animals for inhibiting skin irritation. However, Hahn et al. disclose administration to the animal (particularly human) skin (pg. 17, ln. 24). Also, Hahn et al. clearly teach administering their compositions to human skin (claims 14-17). Also, it is noted that Hahn et al. disclose the use of their composition as a cosmetic product (claim 18), wherein the cosmetic product is a cream, lotion or *moisturizer* (claim 44). Therefore, the compositions according to Hahn et al. would inherently result in improvement of hydration and beauty of the skin, as discussed above.

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5. Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Minoshima et al. (JP 07/268323 A).

Minoshima et al. disclose a pharmaceutical antioxidant preparation comprising spermine or spermidine, tocopherol and ascorbic acid (Abstract). The amount of spermine or spermidine is preferably 0.01-70 wt.% (Abstract). Minoshima et al. disclose an example wherein the composition comprises 200 ppm spermine (0.02 wt.%) ([0025]).

### ***Response to Arguments***

Applicant argues on page 6 that Minoshima et al. does not relate to cosmetic treatment of human skin, rather relates to a pharmaceutical antioxidant preparation. However, administering the composition according to Minoshima et al. will inherently result in improvement of hydration and beauty of the skin because the same amount of spermine and/or spermidine is administered in the same manner as instantly claimed.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1,148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minoshima et al. (JP 07/268323 A) in view of Henderson (WO 00/37087), Ioannides (WO 02/15860) and Eckart et al. (EP 0 884 046 A1).

**Determination of the scope and content of the prior art**

**(MPEP 2141.01)**

The teachings of Minoshima et al. are discussed above and incorporated herein by reference.

**Ascertainment of the difference between the prior art and the claims**

**(MPEP 2141.02)**

Minoshima et al. do not teach the composition further comprising methyl sulfonyl methane, Vitamin B6, calcium d-pantothenate, biotin, zinc, copper and manganese amino acid chelates, and selenium, as instantly claimed. However, Henderson teaches that amino acid chelates of copper, zinc and manganese, and optionally selenium are known to reduce free radical cellular oxidative stress by strengthening and maintaining the activities of enzymes known to remove harmful superoxides, peroxides, and hydroxides (pg. 8, ln. 24-27). Henderson teaches that proper metabolic functioning of minerals such as copper, zinc and manganese in addition to or independent of selenium play an important role in maintaining the function of oxidative enzymes that relate to oxidative bursts in neutrophils and macrophages, and in controlling or alleviating free radical cellular oxidative toxicity (pg. 10, ln. 11-20). Henderson further teaches that

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vitamins are essential for maintaining good health (pg. 11, ln. 19), and vitamins C, E, B6, biotin and pantothenic acid are advantageously added to a comprehensive dietary supplement; wherein Vitamins C and E also provide antioxidant function (pg. 12, ln. 12-32). Henderson teaches that the preferred amount in parts by weight of zinc is  $1-25 \times 10^{-3}$ , selenium is  $1-75 \times 10^{-6}$ , copper is  $0.1-2 \times 10^{-3}$ , manganese is  $0.1-10 \times 10^{-3}$ , Vitamin C is  $10-500 \times 10^{-3}$ , Vitamin E is 1-500 IU, Vitamin B6 is  $0.1-20 \times 10^{-3}$ , biotin is  $25-200,000 \times 10^{-6}$ , and pantothenic acid is  $1-50 \times 10^{-3}$  (pg. 11, ln. 1-14; and pg. 12, ln. 15-28).

Eckart et al. teach that the free oxygen radicals in the skin, which result from UV exposure, attack skin constituents that are responsible for retention of elasticity and or moisture in the skin. The compositions according to Eckart et al. provide a protection to the skin against the formation of these free radicals through incorporation of antioxidants that act as radical scavengers. The polyamines (i.e., spermine and spermidine) in combination with Vitamin E and C show a synergistic improvement in effectivity. Therefore, the compositions of Eckart et al. improve moisture in the skin by preventing attack on the constituents of the skin that are responsible for moisture in the skin.

Minoshima et al. do not teach the addition of methylsulfonylmethane to their pharmaceutical compositions. However, Ioannides teaches that methylsulfonylmethane (MSM) is added to ascorbic acid as an anti-inflammatory and to accelerate healing (pg. 25, ln. 13-16).

#### **Finding of *prima facie* obviousness**

**Rational and Motivation (MPEP 2142-43)**

Therefore, it would have been *prima facie* obvious for one of ordinary skill in the art at the time of the invention to add vitamins and minerals to the formulations of Minoshima et al. to enhance the anti-oxidative properties and improve overall health, as reasonably taught by Henderson and to improve skin hydration as reasonably taught by Eckart et al.; as well as adding methylsulfonylmethane as an anti-inflammatory agent to accelerate healing, as reasonably taught by Ioannides.

With respect to the amounts of each component listed in instant claims 6 and 10, the examiner respectfully points out the following from MPEP 2144.05: “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); see also *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382 (“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages.”); *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969); *Merck & Co. Inc. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); *In re Kulling*, 897 F.2d 1147, 14 USPQ2d 1056 (Fed.Cir. 1990); and *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole would have been *prima facie* obvious to

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one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

### ***Response to Arguments***

Applicant's arguments are the same as discussed above. Therefore, the examiner's responses above are incorporated herein by reference.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### **Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Schlientz whose telephone number is (571)272-9924. The examiner can normally be reached on 9:00 AM to 5:30 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NWS

/John Pak/  
Primary Examiner, Art Unit 1616